REMARKS

By this Amendment, claims 4-6 are cancelled, and claims 7-10 are added. Thus, claims 7-10 are active in the application. Reexamination and reconsideration of the application are respectfully requested.

In item 2 on page 2 of the Office Action, claims 4-6 were rejected under 35 U.S.C. § 102(a) as being anticipated by Kazuyuki et al. (JP 2002-075208, hereinafter "Kazuyuki").

This rejection is believed to be moot in view of the cancellation of claims 4-6. Furthermore, the Applicants respectfully submit that this rejection is inapplicable to new claims 7-10 for the following reasons.

On pages 2-3 and 5 of the Office Action, the Examiner asserted that the limitation "wherein an aging discharge is performed in said plasma display panel by applying a voltage having an alternate voltage component at least between said scan electrode and said sustain electrode" in lines 5-7 of claim 4 relates to the performance of an aging discharge, which was believed to be an intended use. Further, the Examiner asserted that the limitation "wherein, in said plasma display panel, a discharge dent on said protecting layer on the side of said sustain electrode, which is formed by the aging discharge, has a width which is narrower than a discharge dent on said protecting layer on the side of said scan electrode" in lines 8-11 of claim 4 occurs as a result of such "intended use." Citing MPEP 2114, the Examiner refused to give patentable weight to these limitations because the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim.

On pages 3 and 5 of the Office Action, the Examiner asserted that the limitation "wherein, in said plasma display panel, as for a discharge dent formed on said protecting layer on the side of said sustain electrode, which is formed by the aging discharge, the discharge dent formed on said protecting layer in an area away from said scan electrode paired with said sustain electrode as said display electrode has a depth which is shallower than the discharge dent formed on said protecting layer in an area close to said scan electrode paired with said sustain electrode as said display electrode" in lines 8-13 of

claim 5 results from the "intended use" of the aging discharge, and thus did not give patentable to this feature.

The shape and placement of the discharge dent in the plasma display panel of the present invention is an important and novel aspect of the present invention. In conventional aging, a discharge dent formed on the side of the sustain electrode has a shape similar to that of the discharge dent formed on the side of the scan electrode due to a pulse voltage (higher than the discharge starting voltage) being alternately applied between the scan electrode and the sustain electrode.

The Applicants carried out experimental aging by various methods, focusing attention on the area and the depth of the discharge dent formed in an aging process. From the comparison of the experimental results, the Applicants discovered that forming a discharge dent on the side of the sustain electrode so as to have a width which is narrower than the discharge dent on the side of said scan electrode, as recited in new claim 7, and forming the discharge dent on the side said sustain electrode, in an area away from the scan electrode paired with the sustain electrode as the display electrode, so as to have a depth which is shallower than the discharge dent formed in an area close to the scan electrode paired with the sustain electrode as the display electrode, as recited in new claim 8, contributes to a prolonged lifetime of the plasma display panel. At the same time, the aging process shortens the aging time and approves power efficiency for the plasma display panel.

New claims 7-8 have been added in favor of cancelled claims 4-5, respectively. New claims 7-8 have each been drafted so as to positively recite the above features of the present invention.

In particular, new claim 7 recites that the plasma display panel comprises a discharge dent formed on the protecting layer, where the discharge dent on the side of the sustain electrode has a width which is narrower than the discharge dent on the side of the scan electrode.

New claim 8 recites that the plasma display comprises a discharge dent formed on the protecting layer, and that the discharge dent on the side of the sustain electrode, being formed in an area away from the scan electrode paired with the sustain electrode as the

display electrode, has a depth which is shallower than the discharge dent formed in an area close to the scan electrode paired with the sustain electrode as the display electrode.

Accordingly, new claims 7 and 8 each positively recite the features of the discharge dent of the present invention.

Kazuyuki discloses a plasma display panel including a display electrode formed of a pair of a scan electrode 102a and a sustain electrode 102b, a dielectric layer 103 and a protecting layer 104 formed on the dielectric layer 103.

In contrast to new claims 7 and 8, Kazuyuki does not disclose or suggest forming a discharge dent and a shape of the discharge dent, although Kazuyuki mentions that a deterioration of a fluorescent material occurs due to discharge during a period of an aging processing and an influence of an ultraviolet ray, as well as a property change of a protecting layer. In Figure 4, Kazuyuki discloses the scan electrode 102a and the sustain electrode 102b as having the same or symmetrical shape.

Kazuyuki, however, does not disclose or suggest the discharge dent as recited in new claims 7 and 8. Instead, Kazuyuki discloses a method of aging a plasma display panel in which a waveform of applied voltage for a discharge of an aging process has a slope portion that varies slowly, with the aim of providing of providing an image display apparatus which reduces electric power and heat generation at the time of aging processing and shows a stable discharge characteristic.

The Examiner is requested to consider a case of aging a plasma display panel with the scan electrode 102a and the sustain electrode 102b having a symmetrical structure by applying waveforms of the applied voltages as show in Figures 1 and 4 of Kazuyuki to the scan electrode 102a and the sustain electrode 102b alternatively to each other and having the same shape, where the waveform of an applied voltage to a data electrode is flat. In such a case, both of the protecting layers on the scan electrode 102a and the sustain electrode 102b are expected to be sputtered in a similar shape. As a result, it is expected that the respective protecting layers on the scan electrode 102a and the sustain electrode 102b have similar dents formed by sputtering from the aging process.

Therefore, even if the configuration of the present invention is the same as that of Kazuyuki, Kazuyuki does not inherently disclose or suggest that the plasma display panel comprises a discharge dent formed on the protecting layer, where the discharge dent on

the side of the sustain electrode has a width which is narrower than the discharge dent on the side of the scan electrode, as recited in new claim 7. In fact, the disclosure of Kazuyuki, for the reasons presented above, discloses the opposite, as the protective layers on the scan electrode 102a and the sustain electrode 102b of Kazuyuki will have discharge dents that are the same.

Similarly, Kazuyuki does not disclose or suggest that the plasma display comprises a discharge dent formed on the protecting layer, and that the discharge dent on the side of the sustain electrode, being formed in an area away from the scan electrode paired with the sustain electrode as the display electrode, has a depth which is shallower than the discharge dent formed in an area close to the scan electrode paired with the sustain electrode as the display electrode, as recited in new claim 8. In particular, the discharge dents formed on the portions of the protecting layer over the scan electrode 102a and the sustain electrode 102b are the same. In fact, Kazuyuki provides no disclosure which would reasonably support any conclusion to the contrary.

Accordingly, for at least the foregoing reasons, the Applicants respectfully submit that Kazuyuki clearly does not disclose or suggest the shape and placement of the discharge dent as recited in new claims 7 and 8.

Therefore, the Applicants respectfully submit that new claims 7 and 8 are clearly not anticipated by Kazuyuki, since Kazuyuki fails to disclose each and every limitation of new claims 7 and 8.

As described above, the present invention provides a novel effect of proving that that the area and depth of the discharge dent formed in an aging process has a significant influence on the lifetime of a plasma display panel, and at the same time, the aging process in consideration with a proper area and depth of the discharge dent shortens the time that is required for the aging and improves power efficiency. To obtain a discharge dent formed with an optimal depth in an optimal area, the Applicants discovered a voltage waveform to be applied in an aging process.

In particular, the Applicants describe as follows beginning at line 7 on page 9 of the substitute specification:

> The voltage applied to the scan electrode 5 exhibits, as shown in Fig. 4A, a leading edge having a mild slope and a precipitous trailing edge. In contrast, the voltage applied to the sustain electrode 6 has a precipitous

> leading edge and a mild trailing edge, as shown in Fig. 4B....Fig. 4C schematically shows light emission of a panel in the form of a waveform detected by a photo sensor according to the embodiment. As is apparent from Fig. 4C, a strong discharge occurs in response to a steep change in voltage and a weak discharge occurs at a mild change in voltage. In the aging waveform, when the strong discharge occurs, positive ions attracted to the scan electrode 5 as the cathode cause a strong sputtering on the surface of the protecting layer 8. On the other hand, the sustain electrode 6 collects electrons; however, an electron has small mass. Therefore, a strong sputtering never occurs on the surface on the side of the sustain electrode 6. The weak discharge following the strong discharge is the discharge that is localized around the discharge gap 20. In the discharge, positive ions, which are attracted to the sustain electrode 6 close to the discharge gap 20, cause a strong sputtering on the surface of the protecting layer 8. The repeatedly caused sputtering is believed to be forming the discharge dent shown in Fig. 3A. (emphasis added)

New claims 9 and 10 recite these features of the present invention. New claims 9 and 10 each recite a method of aging a plasma display panel having a scan electrode, a sustain electrode and a data electrode. The methods of claims 9 and 10 are recited as comprising performing an aging discharge by applying a voltage having an alternate voltage component at least between the scan electrode and the sustain electrode.

New claim 9 recites that a leading edge of a waveform of voltage applied to the scan electrode has a gradually ascending slope, and a trailing edge of a waveform of voltage applied to the sustain electrode has a gradually descending slope. This feature of new claim 9 is clearly not disclosed or suggested by the voltages applied to the scan electrode 102a and the sustain electrode 102b as shown in Figure 1 of Kazuyuki.

New claim 10 recites that the aging discharge where the scan electrode acts as a node and the sustain electrode acts as a cathode is weaker than the aging discharge where the scan electrode acts as a cathode and the sustain electrode acts as a node. This feature of new claim 10 is clearly not disclosed or suggested by Kazuyuki.

Therefore, the Applicants respectfully submit that new claims 9 and 10 are clearly not anticipated by Kazuyuki, since Kazuyuki fails to disclose each and every limitation of new claims 9 and 10.

Accordingly, the Applicants respectfully submit that new claims 7-10 are clearly not anticipated by Kazuyuki.

Furthermore, it is submitted that the clear distinctions discussed above are such that a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Kazuyuki in such as manner as to result in, or otherwise render obvious, the present invention as recited in new claims 7-10.

Therefore, it is submitted that the new claims 7-10 are clearly allowable over the prior art as applied by the Examiner.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

A fee and a Petition for a two-month Extension of Time are filed herewith pursuant to 37 CFR § 1.136(a).

Respectfully submitted,

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